UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,866	09/29/2000	Ron Maurer	1000735-1	3319

22879 7590 05/17/2004		EXAMINER
HEWLETT PACKARD COMPANY		WU, JINGGE
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ART UNIT	PAPER NUMBER
2623	

INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _02 March 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _1-43_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _5-13 and 20-27_ is/are allowed.

6)☐ Claim(s) _1-4, 14-19, 28-35 and 39-41_ is/are rejected.

7)☐ Claim(s) _37, 38, 42 and 43_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _4_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Applicants' response to the last Office Action, filed on March 2, 2004 has been

entered and made of record.

2.   Applicants' amendment has required new grounds of rejection. New grounds

rejection are therefore presented in the Office Action.

3.   Applicant's arguments have been fully considered but are moot in view of the

new ground(s) of rejection. The Examiner would like to point out that Harrington

discloses chrominance revising algorithm that the chrominance value of a current pixel

is limited (The equation of Cz (i, j) is inherently reduces the chrominance value to Min

(Cmax (i, j)) if a current chrominance value is above Min (Cmax (i, j), C0 (i, j))) in the

range between a maximum and a minimum chrominance value of the neighborhood of

pixels near the pixel. (col. 6 lines 48-59).

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 16-17, and 29 are rejected under 35 U.S.C. 102(a) as being anticipated by US 6031581 to Harrington (a reference of PTO 1449).

As to claim 1, Harrington discloses a method of reducing chromatic bleeding artifacts in a digital image, comprising:

reducing chrominance values of at least some pixels in the digital image(col. 5 line 23-28, col. 6 lines 48-59, see (3) if one chrominance value of pixel in the neighborhood is the maximum chrominance in the neighborhood, then the chrominance value will be reduced to Cz (i, j)=Max (Cmin (i, j), C0 (i, j)), the chrominance value Cz (i, j) of the pixel p(i, j) according to its chromatic dynamic range (col. 5 lines 15-30, col. 6 lines 48-59col. 8 lines 28-33 note that Cmin and Cmax represent the chromatic dynamic range).

As to claim 2, Harrington further discloses the chromatic dynamic range can be presented as function of minimum and maximum values of local neighborhood (col. 5 lines 5-30, col. 8 lines 28-34).

As to claims 16-17, and 29, the claims are the corresponding apparatus and article of manufacture claims to claims 1-2, respectively. The discussion are addressed with regard to claims 1-2.

As to claims 30, 32 and 34, Harrington further discloses using a luminance value d (i,j)/A(i, j) of a pixel being modified to determine an amount of chrominance reduction (col. 3 line 61-col. 4 line 47, col. 5 lines 5-14, col. 7 lines 1-15).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 4, 14-15, 19, 28, 31, 33, 35, 39-41 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Harrington.

As to claims 4, 19, 31, 33 and 35, Harrington does not mention modifying pixel's

chromatic value no more than a chrominance modulus (C0) derived from the

neighborhood and does not modify the pixel if the pixel has a small dynamic range

Examiner takes Official Notice that those features are notoriously well known in

the art.

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to use the scheme of modifying pixel's chrominance value between

zero and minimum of chrominance of the neighborhood pixels and leaving the pixel

unchanged if the pixel has small dynamic range in the method of Harrington in order to

reduce the color bleeding.

As to claims 14 and 28, Harrington does not mention reconstruction image and

the chromatic dynamic range is determined from subsampled chrominance values.

Examiner takes Official Notice that those features are notoriously well known in

the art.

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to use the scheme of subsampling and reconstructing the image in

the method of Harrington in order to reduce the computation load of the method.

As to claim 15, Harrington discloses all limitations except interpolating the

chrominance channels.

Examiner takes Official Notice that interpolation of a chrominance channel is

notoriously well known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the scheme of interpolation in the method of Harrington in order to reduce the computation load of the method.

As to claims 39-41, Harrington does not mention C0 in three states as claimed in claims 39-41.

Examiner takes Official Notice that those features are notoriously well known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the different C0s that are limiting the changes of chrominance value of pixels in the method of Harrington in order to reduce the effects of color bleeding, which the pixels are in different saturations.

7.   Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrington in view of US 5638138 to Hickman and US 5373327 to McGee et al.

As to claims 3 and 18, Harrington does not mention scaling the chromatic value via the ratio of C'/C.

Hickman, in an analogous environment, discloses scaling the chromatic value of the chrominance components Cr and Cb according to the ratio of luminance (col. 5 lines 30-35).

McGee, , in an analogous environment, further discloses the ratio is the chromatic value to keep the hue unchanged (col. 4 lines 9-35 note that X * (Cr-512) can be changed to a form Cr'/C=1/X).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the schemes of Hickman and McGee in the method of Harrington in order to maintain high quality of the image by keeping the hue of the image unchanged after color correction (Harrington, col. 1).

Allowable Subject Matter

8. Claims 37, 38, 42, 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-13, 20-27, and 36 are allowed

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

10.   Any inquiry concerning this communication or earlier communications should be directed to Jingge Wu whose telephone number is (703) 308-9588. He can normally be reached Monday through Thursday from 8:00 am to 5:30 pm. The examiner can be also reached on second alternate Fridays.

Any inquiry of a general nature or relating to the status of this application should be directed to TC customer service whose telephone number is (703) 306-0377.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Amelia Au, can be reached at (703) 308-6604.

The Working Group Fax number is (703) 872-9306.

Jingge Wu

Primary Patent Examiner